T470 User's Manual, Part C … AuxIR Device support … V039 release

Ed Schoell, Dec 16 th 2015

This manual covers the use of the "RES" pin in IR mode on the JED T470. This can be set to an IR out mode in the window on the far right of the "Config Utility". Set "IR Out" as the option in this mode.

It is intended that IR outputs in "AuxIR" mode complement the RS232 drive to the main display device.

So an AuxIR signal can control a projector's screen, an audio processor (e.g. from Panasonic), an ancillary display or a set top box, (e.g. a Wintal, a Healing or a Foxtel).

Audio control: In the same way, T470 volume keys can feed Volume Up and Volume Down commands to a Panasonic, etc. audio controller while the rest of the keys can control a projector or LCD panel via RS232. A third AuxIR key might be allocated as a power On/Off for the Panasonic device.

Ancillary Display: This IR signal can also control an extra display device, and a key on the T470 can turn power On or Off on this auxiliary panel, or even select sources on it. (So, in a church, for instance, the main congregation can watch a projected display controlled via RS232, and an extra key via AuxIR can turn on a smaller LCD display visible to the choir.)

Set Top Boxes: Thus it is useful when an RS232 controlled projector or LCD/Plasma panel is to have a set top box (STB) TV tuner as an input, and for that STB TV channel to be stepped up or down from the JED T470 using a couple of specially setup keys (called "TV Channel Up" and "TV Channel Down"). In this application, a "TV" key should be provided from the source keys to set the LCD panel/projector to, say, an HDMI or a Composite Video connected to the STD output. (One could also allocate an AuxIR "Power" key for the STB, to toggle its power on and off, although this is not necessary: the STD boxes restart in "On" mode on the previous active channel if the power cycles.)

AuxIR setup: The AuxIR device selection is set in the same way as the DisplayDevice, using the Config Utility (but with a new, adjacent Tab. The selection is also a 4-digit code, which can be entered digit by digit or by using Inc. and Dec. buttons. The ID of the selected device is shown in the window below the 4-digit code entry. (This version is due for release early Sept.)

Obviously, a keyboard with AuxIR key allocations must be used. These AuxIR keys are then allocated a function in the same way sources were allocated to source keys of the display device. The "RES Pin" must be set to "IR Out".

Note: A debug mode is built into the Configuration Utility: If the RES pin is temporally set to PIR mode, and the Monitor mode is activated, the T470 will put out debug messages for the AuxIR system consisting of the IR format and all the bytes in hex of the IR code being set out on the IR LED. This allows comparison for correctness with the codes in the tables below, as well as Device codes, etc. Don't forget to set it back to IR after using this debug mode.)

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Panasonic Audio: Code 2000h

This device controls audio via IR, and needs three AuxIR keys allocated. The volume keys are allocated as "AutoIncrement" so the key can be held down and so send a stream of volume inc/dec commands. A third AuxIR key needs to be allocated for Power On/Off.

Device code "02h 20h" is assumed, and AuxIRDevice code, 0A0h are first three bytes of a 48 bit data message sent at 38kHz using the standard Panasonic format. Next are two code bytes (as below) and then a final byte which is an exclusive OR checksum of the AuxIRDevice code and the two Function codes.

Number	**AuxIRFunction**	**Code sent**	**Comments**
00	Power On/Off	00h 03Dh	Toggle power key
01	Volume Up	00h 020H	Use an auto-inc key
02	Volume Down	00h 021h	Use an auto-inc key

Soniq LCD TV : Code 3000h

This device controls audio via IR, and needs three AuxIR keys allocated. The volume keys are allocated as "AutoIncrement" so the key can be held down and so send a stream of volume inc/dec commands. A third AuxIR key needs to be allocated for Power On/Off.

A display like this can be used in a number of ways as an AuxIR controlled device:

- If it is used as an auxiliary display always set to one source channel, and no audio via this display, only one key needs to be allocated, a power on/power off toggle key using AuxIRFunction 00. Set up the source channel using the hand-held remote. Organise audio via the main display (using keys allocated a volume up/down keys) or have audio controlled externally e.g. via a mixing desk;
- If it is used as an auxiliary display always set to various source channels, several additional keys need to be allocated. These are the "Source" key, the "Up/Down arrow" keys and the "OK" key;
- Audio keys can be used if necessary; or
- Fuller functionality can be achieved by allocating keys for the Up/Down/Left/Right keys, the Menu and the Ok and Exit keys.

Device code "72h DDh" is assumed, and a 32 bit data message is sent at 38kHz, using the generic "NEC" format. The Code below is the third byte, and the code is send again, inverted as the 4th byte.

Number	AuxIRFunction	Code sent	Comments
00	Power On/Off	00Ch	Toggle power key
03	Volume Up	049h	Use an auto-inc key
04	Volume Down	043h	Use an auto-inc key
05	Channel Up	051h	TV channel
06	Channel Down	04Dh	TV channel
08	Up Arrow	044h	
09	Down Arrow	01Dh	
0A	Left arrow	01Ch	
0B	Right arrow	048h	
0C	OK Enter	05Ch	
0D	Menu	003h	
0E	Exit	05Dh	
0F	Mute	01Ah	Toggle
18	Source	01Eh	Use with up/down arrows and OK to select sources.

Foxtel IQ2 Set Top Box : Code 6000h

In simple applications, this device just needs Up and Down TV channel keys allocated on the T470 keyboard.

If it is used infrequently or (e.g. to save power) it needs to be placed into standby between uses) a Power On/Off toggle key can be allocated. It always powers up on the channel being used before standby. Rebooting after standby takes a few seconds, which could annoy users.

Full functionality can be achieved by allocating other keys, e.g. menu, arrow and the “Select” function to T470 keys.

Audio level keys can also be allocated on this STB, or this could be left at a set level to be controlled via the display device volume “21h 0Ah 026h” is assumed, and a 32 bit data message is sent at 36kHz using the Philips RC-MM format. The Code below is the 4th byte. Two bits are sent by width-modulating the inter-pulse period.

Number	**AuxIRFunction**	**Code sent**	**Comments**
00	Power On/Off	00Ch	Toggle power key
03	Volume Up	010h	Use an auto-inc key
04	Volume Down	011h	Use an auto-inc key
05	Channel Up	020h	TV channel
06	Channel Down	021h	TV channel
08	Up Arrow	058h	
09	Down Arrow	059h	
0A	Left arrow	05Ah	
0B	Right arrow	05Bh	
0C	Select	05Ch	OK
0D	Setup	054h	menu
0E	Back	083H	Exit
0F	Mute	00Dh	Toggle
18	Foxtel	04Eh	
19	AV	038h	

Healing Set Top Box HTT894 : Code 7F00h

In simple applications, this device just needs Up and Down TV channel keys allocated on the T470 keyboard.

If it is used infrequently, or, (e.g. to save power) it needs to be placed into standby between uses) a Power On/Off toggle key can be allocated. It always powers up on the channel being used before standby. Rebooting after standby takes a few seconds, which could annoy users.

Full functionality can be achieved by allocating other keys, e.g. menu, arrow and the "OK" function to T470 keys.

Audio level keys can also be allocated on this STB, or this could be left at a set level to be controlled via the display device volume controls.

Device code "01h F6h" is assumed, and a 32 bit data message is sent at 38kHz using the generic "NEC" format. The Code below is the third byte, and the code is send again, inverted as the 4th byte.

Number	**AuxIRFunction**	**Code sent**	**Comments**
00	Power On/Off	012h	Toggle power key
08	Up / Ch Up	01Bh	Same code for CH+ and Up Arrow
09	Dn / Ch Dn	01Fh	Same code for CH- and Down Arrow
0A	Lft Vol Dn	01Eh	Same code for VOL- and Left Arrow
0B	Rgt Vol Up	01Ah	Same code for VOL+ and Right Arrow
0C	OK Enter	05Bh	
0D	Menu	016h	
0E	Exit	015h	
0F	Mute	010h	Toggle
18	TV/R	040h	Toggle

Wintal STB14HD / Healing Set Top Box HTT898 : Code 8000h

In simple applications, this device just needs Up and Down TV channel keys allocated on the T470 keyboard.

If it is used infrequently, or (e.g. to save power) it needs to be placed into standby between uses) a Power On/Off toggle key can be allocated. It always powers up on the channel being used before standby. Rebooting after standby takes a few seconds, which could annoy users.

Full functionality can be achieved by allocating other keys, e.g. menu, arrow and the "OK" function to T470 keys.

Audio level keys can also be allocated on this STB, or this could be left at a set level to be controlled via the display device volume controls.

Device code "80h FFh" is assumed, and a 32 bit data message is sent at 38kHz using the generic "NEC" format. The Code below is the third byte, and the code is send again, inverted as the 4th byte.

Number	**AuxIRFunction**	**Code sent**	**Comments**
00	Power On/Off	00Ah	Toggle power key
08	Up arrow	000h	Same code for CH+ and Up Arrow
09	Down arrow	001h	Same code for CH- and Down Arrow
0A	Left arrow	003h	Same code for VOL- and Left Arrow
0B	Right arrow	002h	Same code for VOL+ and Right Arrow
0C	OK Enter	01Fh	
0D	Menu	01Ah	
0E	Exit	01Ch	
0F	Mute	00Dh	Toggle
18	TV/USB	00Ch	Toggle